Exploring a Sensor

In this activity, you will investigate a sensor through exploration. Three things that affect the readings you obtain during a data collection are the sensor, the software, and the surroundings. For any project you might undertake, understanding what a sensor measures and the range over which it can be used are very important. The software, or more directly the software settings you use, can make a difference in the displayed sensor values. The greatest control you have is over the surroundings. By manipulating the variables that a sensor responds to in a controlled way, you can predict and achieve a desired response.

For this activity, you will be assigned a sensor to explore. The Vernier data collection software Logger *Pro* has tools you can use to modify the sensor readings collected and/or displayed. Your instructor will provide you with supplies you can use to control the surroundings as you explore your sensor.

Objectives

In this activity, you will

1. Explore a sensor by collecting data under controlled conditions.
2. Use a sensor output to match given graphs.
3. Use software tools to control sensor readings and graphs.

MATERIALS

|  |  |
| --- | --- |
| LabQuest Mini | Assigned Sensor |
| Logger *Pro* Software | Accessories |

PROCEDURE

Complete the information for each section.

1. Report sensor information

Use the Vernier website (<http://www.vernier.com/sensors>) to find information about your sensor.

|  |  |
| --- | --- |
| Sensor: | Unit of Measure: |
| **What is measured:** | |
| **Sensor Limitations** (things that might damage your sensor): | |

2. Match Graph 1:

|  |
| --- |
| *graph3.bmp* |
| **Describe how you used your sensor and the software to create this graph:** |
| **What did you learn about your sensor or the software from trying to match this graph?** |

3. Match Graph 2:

|  |
| --- |
| *graph4.bmp* |
| **Describe how you used your sensor and the software to create this graph:** |
| **What did you learn about your sensor or the software from trying to match this graph?** |

4. Match Graph 3:

|  |
| --- |
| *graph5.bmp* |
| **Describe how you used your sensor and the software to create this graph:** |
| **What did you learn about your sensor or the software from trying to match this graph?** |

5. Match Graph 4:

|  |
| --- |
| *graph1.bmp* |
| **Describe how you used your sensor and the software to create this graph:** |
| **What did you learn about your sensor or the software from trying to match this graph?** |

6. Match Graph 5:

|  |
| --- |
| *graph2.bmp* |
| **Describe how you used your sensor and the software to create this graph:** |
| **What did you learn about your sensor or the software from trying to match this graph?** |